

Listing of Claims:

Claim 1 (currently amended): A system for ~~transmitting~~ broadcasting auxiliary data within a modulated video signal ~~from a broadcast source~~ to a hand-held device operatively associated with a slot, the system comprising:

~~the broadcast source comprises means for transmitting auxiliary data to the slotted hand-held device via the~~ broadcasting the modulated video signal;

an interface device electronically coupled to the hand-held device ~~via through~~ the slot, the interface device comprising and comprises a card an interface microcontroller, a receiver electronically coupled to the ~~card~~ interface microcontroller for receiving the modulated video signal from the broadcast source, and circuitry electronically coupled to the ~~card~~ interface microcontroller and the receiver for demodulating the modulated video signal and reproducing the auxiliary data, and an interface operatively associated with the interface microcontroller for transferring the auxiliary data to the hand-held device via by use of an interface protocol through the slot; and

the hand-held device operatively associated with the slot comprises a device microcontroller for processing the ~~signal~~ auxiliary data received ~~via~~ by use of the interface protocol from the interface device and the slot for connecting the interface device to the hand-held device.

Claim 2 (currently amended): The system of claim 1, wherein the interface device further comprises storage disposed on the

interface device and coupled to the interface microcontroller for storing the auxiliary data.

Claim 3 (currently amended): The system of claim 1, wherein the ~~memory-card~~ interface device is a Secured Digital card, the interface protocol is SDIO, and the slot is a SD slot.

Claim 4 (currently amended): The system of claim 1, wherein the hand-held device operatively associated with the slot further comprises a means ~~of~~ for supplying the user with ~~promotional opportunities~~ a promotional opportunity based on the receipt of the auxiliary data.

Claim 5 (original): The system of claim 1, wherein the hand-held device with the slot further comprises wireless Internet access.

Claim 6-12 (cancelled)

Claim 13 (currently amended): The system of claim & 1, wherein the broadcast source is a decoder box and the receiver is a radio frequency receiver.

Claims 14-26 (cancelled)

Claim 27 (new): The system of claim 1, wherein the broadcast source is a display device and the receiver of the interface card is an optical detector.

Claim 28 (new): The system of claim 27, wherein the display device is an analog television or a high definition television.

Claim 29 (new): The system of claim 27, wherein the display device is a computer display or monitor.

Claim 30 (new): The system of claim 1, wherein the hand-held device is a smart card.

Claim 31 (new): The system of claim 1, wherein the hand-held device is a mobile phone.

Claim 32 (new): The system of claim 1, wherein the hand-held device is a personal digital assistant (PDA).

Claim 33 (new): The system of claim 1, wherein the hand-held device is a gaming device.

Claim 34 (new): The system of claim 1, wherein the hand-held device is a digital music device.

Claim 35 (new): The system of claim 1, wherein the memory card is a flash memory card.

Claim 36 (new): The system of claim 35, wherein the flash memory card is selected from the group consisting of a SD (secure digital) card, a COMPACTFLASH card, a MEMORY STICK card, a MULTIMEDIACARD (MMC) and a SMARTMEDIA card.

Claim 37 (new): The system of claim 1, wherein the protocol is an open protocol.

Claim 38 (new): The system of claim 1, wherein the interface microcontroller and circuitry are a data decoder.

Claim 39 (new): The system of claim 1, wherein the circuitry comprises:

an analog pre-filter operatively associated with the interface microcontroller;

a vertical detect/signal strength circuitry operatively associated with the interface microcontroller and the analog pre-filter; and

an auxiliary data detector operatively associated with the interface microcontroller and the analog pre-filter.

Claim 40 (new): The system of claim 39, wherein the analog pre-filter comprises:

a current voltage converter for converting the modulated video signal into a current;

an automatic gain control electrically connected to the current voltage converter for measuring signal strength and adding gain to or removing gain from the modulated video signal;

a low pass filter electrically connected to the automatic gain control for removing high frequency noise from the modulated video signal; and

a high pass filter electrically connected to the low pass filter for removing low frequency noise from the modulated video signal.

Claim 41 (new): The system of claim 39, wherein the analog pre-filter comprises means for preparing for accurate digitization of the modulated video signal.

Claim 42 (new): The system of claim 39, wherein the vertical detect/signal strength circuitry comprises:

a signal strength detector for polarizing, transitioning, inverting and integrating the modulated video signal; and

an analog vertical sync for generating a vertical synchronization signal and locking to the vertical synchronization signal.

Claim 43 (new): The system of claim 39, wherein the vertical detect/signal strength circuitry comprises means for generating a vertical synchronization signal and locking to the vertical synchronization signal.

Claim 44 (new): The system of claim 39, wherein the auxiliary data detector comprises:

a horizontal notch filter for removing a portion of the modulated video signal at a horizontal line scanning rate,

a low pass filter with cutoff electrically coupled to the horizontal notch filter for extra filtering of a remaining portion;

a band pass filter electrically coupled to the low pass filter with cutoff for additional filtering of the remaining portion;

a signal rectifier electrically coupled to the band pass filter for integrating the remaining portion; and

a signal energy integrator electrically coupled to the signal rectifier for measuring the strength of the remaining portion.

Claim 45 (new): The system of claim 39, wherein the auxiliary data detector comprises means for measuring strength of the modulated video signal after removal of an underlying video signal.

Claim 46 (new): A method of modulating a video signal with auxiliary data, the video signal having one or more frames, each frame having a first field and a second field, the method comprising:

selecting at least one of the one or more frames to modulate;

modulating the first field of each of the one or more selected frames to encode a logical one in the one or more selected frames; and

modulating the second field of each of the one or more selected frames to encode a logical zero in the one or more selected frames, where the modulation of the selected frames creates a modulated video signal.

Claim 47 (new): The method of claim 46, further comprising selecting an analog NTSC video signal as the video signal.

Claim 48 (new): The method of claim 46, further comprising transmitting the video signal from a signal source to an encoder.

Claim 49 (new): The method of claim 48, further comprising transmitting the modulated video signal from the encoder to a broadcast source.

Claim 50 (new): A method of modulating a video signal with auxiliary data, the video signal having one or more frames, each frame having a first field and a second field, the method comprising:

selecting at least one of the one or more frames to modulate;

splitting the first field and the second field of the one or more selected frames into two or more segments; and

modulating each of the two or more segments in either the first field or the second field of the one or more selected frames, wherein modulating a selected segment in the first field of each of the one or more selected frames encodes a logical one and modulating a selected segment in the second field of each of the one or more selected frames encodes a logical zero.

Claim 51 (new): The method of claim 50, further comprising selecting four segments as the two or more segments.

Claim 52 (new): The method of claim 50, further comprising selecting equal sized segments as the two or more segments.

Claim 53 (new): The method of claim 50, further comprising selecting an analog NTSC video signal as the video signal.

Claim 54 (new): The method of claim 50, further comprising transmitting the video signal from a signal source to an encoder.

Claim 55 (new): The method of claim 54, further comprising transmitting the modulated video signal from the encoder to a broadcast source.

Claim 56 (new): A method of detecting auxiliary data modulated within a video signal, the video signal having one or more frames, each of the frames having a first field and a second field, the first field and the second field each having one or more segments, the method comprising:

obtaining the one or more frames of the video signal from the display device via a receiver operative with a device;
and

determining whether auxiliary data is present in the video signal as received by the device by performing a field comparison on the one or more segments of the first field and the corresponding one or more segments of the second field for each of the one or more frames.

Claim 57 (new): The method of claim 56, wherein the first field and the second field each have an intensity, further comprising selecting:

subtracting the intensity of the one or more segments of the second field from the corresponding one or more segments of the first field, or

subtracting the intensity of the one or more segments of the first field from the corresponding one or more segments of the second field

as the field comparison.

Claim 58 (new): The method of claim 57, further comprising decoding a logic one as the auxiliary data when for each of the one or more segments of the first field are encoded and the corresponding one or more segments of the second field are not encoded and decoding a logic zero as the auxiliary data when for each of the one or more segments of the first field are not encoded and the corresponding one or more segments of the second field are encoded.

Claim 59 (new): The method of claim 57, further comprising decoding a logic one as the auxiliary data when for each of the one or more segments of the second field are encoded and the corresponding one or more segments of the first field are not encoded and decoding a logic zero as the auxiliary data when for each of the one or more segments of the second field are not encoded and the corresponding one or more segments of the first field are encoded.

Claim 60 (new): The method of claim 56, further comprising selecting a hand-held device as the device.

Claim 61 (new): The method of claim 60, further comprising selecting a slotted hand-held device as the hand-held device, the slotted hand-held device engaged to an interface card, the interface card comprising the receiver.

Claim 62 (new): The method of claim 56, further comprising amplifying, filtering and shaping the video signal.

Claim 63 (new): The method of claim 56, further comprising determining whether a complete data packet has been received on the device.

Claim 64 (new): The method of claim 63, further comprising providing a benefit to a user of the device when the complete data packet has been received.

Claim 65 (new): The method of claim 63, further comprising selecting a data packet having 8 bytes in length.

Claim 66 (new): The method of claim 65, wherein the data packet comprises:

a first byte of the data packet having a preamble;

a second byte of the data packet having a data packet number;

a third, fourth, fifth, sixth and seventh bytes three through seven of the data packet having actual data; and

an eighth data byte of the data packet having a CRC byte.

Claim 67 (new): The method of claim 66, further comprising determining whether the complete data packet is a valid complete data packet by checking the CRC byte of the complete data packet.

Claim 68 (new): The method of claim 63, further comprising identifying a data packet number of the complete data packet.

Claim 69 (new): The method of claim 68, further comprising determining the total number of packets to be received by the device from the complete data packet.

Claim 70 (new): The method of claim 69, further comprising selecting up to sixteen data packets as the total number of packets.

Claim 71 (new): The method of claim 69, further comprising providing a benefit to a user of the device when the total number of packets is one.

Claim 72 (new): The method of claim 69, further comprising:

determining whether every data packet has been captured;

and

providing a benefit to a user of the device when every data packet has been captured.

Claim 73 (new): The method of claim 72, further comprising selecting textual information as the benefit.

Claim 74 (new): The method of claim 72, further comprising selecting a promotional opportunity as the benefit.

Claim 75 (new): The method of claim 74, further comprising selecting a prize, a coupon, a game or a special access privilege as the promotional opportunity.

Claim 76 (new): The method of claim 56, further comprising means for determining where the first field and the second field of each the one or more frames begin.

Claim 77 (new): The method of claim 56, further comprising broadcasting the video signal from a broadcast source.

Claim 78 (new): The method of claim 77, further comprising electrically connecting a receiver of the hand-held device to a broadcast source.

Claim 79 (new): The method of claim 77, further comprising selecting a display device as the broadcast source.

Claim 80 (new): The method of claim 79, further selecting a hand-held device as the device and orienting the receiver of the hand-held device toward the display device.

Claim 81 (new): The method of claim 77, further comprising seeking and synchronizing to a vertical retrace period of the video signal.

Claim 82 (new): The method of claim 81, wherein seeking and synchronizing to a vertical retrace period of the video signal comprises:

seeking a first display section of a picture presented on the display device is black;

waiting a sufficient amount of time for a vertical refresh of the picture;

determining if a second display section of the picture presented on the display device is black;

looking beyond the first display section when the picture presented on the display device for the second display section is not black; and

locking on a vertical retrace period when the second display section is black.

Claim 83 (new): The method of claim 82, further comprising releasing the lock on the vertical retrace period after a few seconds.

Claim 84 (new): The method of claim 56, further comprising seeking a first data bit in a data packet that has been received, wherein the first data bit acts as a marker or a preamble.

Claim 85 (new): The method of claim 46, further comprising selecting altering intensity of one or more pixels on scans lines in the first field as modulating the first field and

altering intensity of one or more pixels on scans lines of scans lines in the second field as modulating the second field.

Claim 86 (new): The method of claim 50, further comprising selecting altering intensity of one or more pixels on scans lines in the first field as modulating the first field and altering intensity of one or more pixels on scans lines of scans lines in the second field as modulating the second field.